

**Sage Grouse Habitat Management Risks, Conservation Measures,  
and Monitoring Actions  
Vya Population Management Unit  
Surprise Field Office BLM**

The Vya PMU is considered to be maintaining the second largest population of Greater sage-grouse in northeastern California. Making major changes to existing management (livestock, wild horses, fire, recreation, mining) is a risk because we cannot be absolutely sure why the PMU is maintaining itself, or what impact major changes could have. Changes in management in the Vya PMU should be carefully considered in terms of scale and degree of risk, and they should be initiated slowly.

There are approximately 500,413 acres in the Vya PMU. Most of the PMU is managed by federal agencies with about 391,432 acres managed by the BLM and another 10,759 acres managed by the U.S. Forest Service. Approximately 82,714 acres (16.5%) is privately owned and another 9,825 acres (2.0%) is classified as water. The last 5,049 acres (1.0%) are classified as "unknown". Elevations within the PMU range from 4,470 to 8,300 feet with the vast majority of acreage within the PMU falling between 5,200 and 6,400 feet.

Using existing data layers and staff knowledge, the Geographic Information System (GIS) *Arcview* (Version 3.2) was used to model the approximate acreage of each "R" value habitat within the Vya PMU. While final mapping and fine tuning of the map still needs to be done, this method estimated about 40% of acres were in the "R-0" habitat, 5% of acres in "R-1", 26% of acres in "R-2", 22% of acres in "R-3", and 1% of acres in "R-4". Another 6% of acres are currently in unknown condition or did not map out as suitable habitat for sage-grouse. It is important to note, however, that these breakdowns are expected to change in the future as more precise data become available. Although other working groups may have broke down "R-value" habitats into further subsets, at this time, the Surprise Field Office staff does not believe that a further breakdown of habitat types can be ascertained with any great certainty.

## Conservation Goals

1. Promote habitat conditions that support wintering, breeding, nesting, and brood-rearing success.
2. Provide secure sage grouse winter, breeding, and nesting habitat with minimal disturbance and harassment.
3. Permit no net, long-term loss of sage grouse habitat as a result of actions authorized by federal and state agencies; minimize habitat losses resulting from natural disturbances (wildland fire, insects, disease, etc.); work with landowners to minimize habitat losses on private lands.
4. Continue existing, and initiate, new efforts to restore historical sage grouse habitat.

## Factor: Habitat

### **Risk #1: Temporary conversion of sagebrush communities to perennial herbaceous communities**

**Season/Habitat affected: All**

**Contributing Management Action: Wild and/or prescribed fire or herbicide use on areas with a strong native understories.**

**Risk Rating: Medium**

Within the Vya PMU, the Surprise Field Office has some records of fires as early as 1900 although more complete records of fires have been kept since the early 1980's. Since 1900, approximately 12,205 acres (about 2.4% of the PMU) are known to have burned in 36 separate incidents. Incidents numbered between 1 and 5 per year. Fire size has ranged from the 2,837 acre *Lake 2* fire which burned in September of 1999 to the smallest, the *Crooks* fire which burned less than 1 acre in July 2001. About 64% of fires (n=23) were natural starts due to lightning strikes from early July to late September. These incidents burned a total of 4,025 acres or 33% of area burned. The remaining 36% of fires (n=13) were responsible for the other 67% of area burned and were due to accidental or unknown causes starting for the most part between August and October. Fires have occurred primarily at elevations above 5,000 feet and between 4,600 and 6,800 feet with most acreage appearing to have burned in low sage sites, then: big sage, basin big, and Wyoming sites, and finally the fewest in mountain big sage sites.

The risk of temporarily converting large acreages of land from sagebrush to perennial herbaceous vegetation is low on the Surprise Resource Area. There are few natural or artificial starts, and the variety of vegetation types and topography and the amount of rock limits the size and extent of most fires. In addition, the Surprise Field Office currently follows a policy of full suppression on all wildfires, and resources are generally sufficient to begin immediate control of most fires. The risk of large fires is probably locally higher in the lower elevations as is attested by larger fires on these sites.

The risk of temporarily converting smaller areas of land from sagebrush to perennial herbaceous vegetation is moderate to high in the Vya PMU. There is no active fire plan to specify areas that should be left with islands of unburned fuel. As a result, general firefighting techniques are standard practice, including burning out islands of unburned fuel. Many areas are occupied by over mature stands of sagebrush, which need disturbance to return them to productive sagebrush communities. Small-scale prescribed fire is planned for many of these stands in the higher elevations. Prescribed fire has commonly escaped from control lines and burned additional, unplanned acres.

Prescribed fire continues to be recognized as a tool, particularly for restoring aspen, riparian, and high elevation big sagebrush communities to natural fire regimes (see Appendix #2, Cowhead/Massacre General Decisions #15 and 16 part C). The *Lake 2* wildfire rehabilitation plan, and all prescriptive fire plans, emphasize resting burned areas for a minimum of two growing seasons with the objective of restoring native herbaceous vegetation for soil stabilization. However, mountain big sagebrush restoration for sage grouse habitat has not been included as an objective in any of the current Activity or Land Use Plans. The vast majority of wild and prescriptive fires in the Vya PMU have occurred at lower to mid elevations. Lower elevation fires (below about 5,500 feet) have come back to heavy cheatgrass even when immediately reseeded (lower elevations of *Lake 2* fire). At higher elevations, fires may never completely burn leaving blocks of sagebrush. These sagebrush blocks provide a natural seed source, the burned areas provide additional habitat variety for wildlife, and sagebrush recovery generally occurs naturally.

**WAFWA Guidelines:** (See Appendix #1). 1, 5, 6, 7, 8, 9, 11, 13, 14, 18, 19, 20, 29, 30, 31, 32, and 33.

1. ["Monitor habitat conditions and only propose treatments if warranted by range condition (i.e., the area no longer supports habitat conditions described in the following guidelines under habitat protection). Do not base land treatments on schedules, targets, or quotas "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** With the exception of; past non-native species seedings, land treatments (prescribed fire, brush reduction, juniper reduction, native seeding) are conducted for one of two reasons. Small areas around private lands, structures, and other important resource sites are treated to reduce the risk of wildfire. All remaining vegetation treatments are conducted to restore ecological site conditions. Decisions to implement vegetation treatments are made on a case-by-case basis, and not as part of schedules, targets or quotas.

5. [" Manage breeding habitats to support 15-25% canopy cover of sagebrush, perennial herbaceous cover averaging >18 cm in height with >15% canopy cover for grasses and >10% for forbs and a diversity of forbs (Barnett and Crawford 1994, Drut et al. 1994a, Apa 1998) during spring (Table 3). Habitats meeting these conditions should have a high priority for wildfire suppression and should not be considered for sagebrush control programs. Sagebrush and herbaceous cover should provide overhead and lateral concealment from predators. If average sagebrush height is >75 cm, herbaceous cover may need to be substantially greater than 18 cm to provide this protection. The herbaceous height requirement may not be possible in habitats dominated by grasses that are relatively short when mature. In these cases, local biologists and range ecologists should develop height requirements that are reasonable and ecologically defensible. Cover on leks does not have to meet the above requirements (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** With the exception of; past non-native species seedings, all of the lands in the Surprise Field Office managed portion of the Vya PMU are being managed for mid-, late-, or potential natural communities, as defined by the NRCS ecological site potentials (see Cowhead/Massacre LUP; Subunit #1, decision #6; Subunit #2, decision #5; Subunit 3, decision #4). Where mid-, late-, or potential natural community is compatible with 15-25% canopy cover of sagebrush, >15% canopy cover of grasses, and >10% canopy cover of forbs, breeding habitat will be managed to meet these cover classes. Where mid-, late-, or potential natural community should have sagebrush canopy covers in the 15-25% range, and current sagebrush canopy cover is greater than 25%, especially if sagebrush canopy cover is suppressing the herbaceous understory, management to restore appropriate sagebrush covers may require reducing sagebrush cover to less than 15% in the short term.

Current policy is for full wildfire suppression throughout the Surprise Resource Area, including all sage grouse breeding habitat. However, prescribed fire and other vegetation treatments continue to be considered for use in areas that meet the needs for sage grouse breeding habitat, if treatment is needed to maintain or improve ecological site conditions. Where vegetation treatment is proposed in areas used by sage grouse, the timing, size, and pattern of treatment are adjusted to minimize impacts on seasonal sage grouse habitat.

The guideline to maintain 18 cm (about 7 inches) of herbaceous cover around sagebrush for nest screening can be met, without changing current utilization guidelines of moderate use (see Cowhead/Massacre general decision #3, and most AMP's), where: 1) ecological sites are meeting the mid/late/PNC seral stage objectives, and 2) where bluebunch wheatgrass is the dominant or a co-dominant species. Bluebunch wheatgrass is generally a significant portion of the community on loamy soils at higher elevations (>6000 feet), and on deep loamy soils and/or north facing slopes at lower elevations. The guideline would not be fully met where bluebunch wheatgrass is not a dominant/co-dominant species (either because the site does not have the potential to support bluebunch wheatgrass, or because the site is in an early seral stage), or where the community has moved beyond PNC and brush species are reducing the vigor/density of bluebunch wheatgrass. On sites dominated by other species of native, perennial grasses (such as Idaho fescue and Thurber's needlegrass), the 18 cm herbaceous cover guideline is being met on very productive sites, and on areas which are less accessible to livestock and wild horses (especially on steeper slopes and areas that are more than 1/2 mile from water).

6. [ For non-migratory grouse occupying habitats that are uniformly distributed (i.e., habitats have the characteristics described in guideline 5 and are generally distributed around the leks), protect (i.e., do not manipulate) sagebrush and herbaceous understory within 3.2 km of all occupied leks. For non-migratory populations, consider

leks the center of year-round activity and use them as focal points for management efforts (Braun et al. 1977)“(Connolly et al. 2000).]

7. [“For non-migratory populations where sagebrush is not uniformly distributed (i.e., habitats have the characteristics described in guideline 5 but irregularly distributed with respect to leks), protect suitable habitats for <5km from all occupied leks. Use radio-telemetry, repeated surveys for grouse use, or habitat mapping to identify nesting and early brood rearing habitats ”, (Connolly et al. 2000).]

8. [“For migratory populations, identify and protect breeding habitats within 18 km of leks in a manner similar to that described for non-migratory sage grouse. For migratory sage grouse, leks generally are associated with nesting habitats but migratory birds may move >18 km from leks to nest sites. Thus, protection of habitat within 3.2 km of leks may not protect most of the important nesting areas (Wakkinen et al. 1992, Lyon 2000)”, (Connolly et al. 2000).]

**Surprise Field Office policy/decision:** Response for 6, 7, and 8. Radio telemetry studies conducted in the northern portion of the Vya PMU have not yet determined migratory or non-migratory status for sage grouse in this PMU. Considering the cost of radio color operations this most likely will not happen for most birds. Known leks are distributed throughout the Vya PMU with habitat more or less uniformly distributed around them. Known active leks are concentrated in the northwestern corner of the PMU.

Current Field Office policy is to consider leks the center of year-round activity, “Evaluate on a case-by-case basis. Areas within two miles of strutting grounds which do not meet nest habitat requirements may be treated”, (Cowhead/Massacre LUP, General Decision #16). In addition, it is Field Office policy to consider wildlife habitat needs prior to implementation of any land treatment projects. The timing, size, and pattern of treatment are adjusted to minimize short-term impacts on sage grouse habitat, and other wildlife habitat. Treatment projects tend to be relatively small in size, and all consider site-specific impacts on sage grouse seasonal habitat needs.

9. [“In areas of large-scale habitat loss (>40% of original breeding habitat), protect all remaining habitats from additional loss or degradation. If remaining habitats are degraded, follow guidelines for habitat restoration listed below” (Connolly et al. 2000).]

**Surprise Field Office policy/decision:** Creating a two mile buffer around all known leks, active and inactive, within the Vya PMU and overlaying known fires, seedings, and range improvements, there are no areas within the Vya PMU that can be characterized as having lost more than 40% of the original sage grouse breeding habitat. In addition, no fires or vegetation manipulations are known to have destroyed any lek in the PMU, i.e., overlap of lek and burn, although several are

known to have come within 0.8 km (0.5 miles). The policy of full wildfire suppression reduces the risk of losing large portions of sage grouse breeding habitat. Vegetation treatment is conducted on a site-specific basis, and the needs for sage grouse nesting habitat are considered whenever projects are proposed. Therefore, should large blocks of sage grouse breeding habitat be lost to wildfire, additional vegetation treatment in the area would not be proposed.

11. ["Suppress wildfires in all breeding habitats. In the event of multiple fires, land management agencies should have all breeding habitats identified and prioritized for suppression, giving the highest priority to breeding habitats that have become fragmented or reduced by >40% in the last 30 years "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** There are no areas within the Vya PMU that can be characterized as having lost more than 40% of the original sage grouse breeding habitat. It is current Surprise Field Office policy to suppress all wildfires, regardless of where they occur. To date, current staffing levels have been sufficient to respond to all fires as they occur. Therefore, fire suppression has not needed to be prioritized. Should prioritization for wildfire suppression become necessary in the future, urban interface areas would probably receive the highest priority, followed by low elevation sites prone to cheatgrass invasion, then by high elevation areas (including most sage grouse breeding habitats).

13. ["Before initiating vegetation treatments, quantitatively evaluate the area proposed for treatment to ensure that it does not have sagebrush and herbaceous cover suitable for breeding habitat (Table 3). Treatments should not be undertaken within sage grouse habitats until the limiting vegetation factor(s) has been identified, the proposed treatment is known to provide the desired vegetation response, and land use activities can be managed after treatment to ensure that vegetation objectives are met "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** With the exception of; past non-native species seedings and fuel reduction projects, land treatments in Vya PMU are conducted with the objective of maintaining or restoring ecological site conditions. Ecological sites in mid to late seral stage generally provide the most ideal sage grouse breeding habitat possible for the site. Few land treatments are currently conducted in the resource area. All are relatively small in size, and all consider site-specific impacts on sage grouse seasonal habitat needs. The timing, size, and pattern of treatment are adjusted to minimize short-term impacts on sage grouse, and other wildlife habitat. At the current scale of implementation, land treatments in the Surprise Resource Area are providing a net benefit to sage grouse habitat.

14. ["Restore degraded rangelands to a condition that again provides suitable breeding habitat for sage grouse by including sagebrush, native forbs (especially legumes), and native grasses in reseeding efforts (Apa 1998). If native forbs and grasses are

unavailable, use species that are functional equivalents and provide habitat characteristics similar to those of native species "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Rehabilitation seed mixtures always include native species of grasses, shrubs (including big sagebrush), and forbs. Non-native species, such as crested wheatgrass and forage kochia are only used in areas where native species have little or no chance of successfully reseeding. Current BLM policy is to support native species habitat and communities whenever possible.

18. ["When restoring habitats dominated by mountain big sagebrush, regardless of the techniques used (e.g., fire, herbicides), treat <20% of the breeding habitat (including areas burned by wildfire) within a 20-year period (Bunting et al. 1987). The 20-year period represents the approximate recovery time for a stand of mountain big sagebrush. Additional treatments should be deferred until the previously treated area again provides suitable breeding habitat (Table 3). In some cases, this may take <20 years and in other cases >20 years. If 2,4-D or similar herbicides are used, they should be applied in strips in a manner that minimizes their effect on forbs "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** (See Appendix 2, Cowhead/Massacre LUP, Decision #16 C, 3(a) and 4(a) – Allow for treating up to 90% of any particular treatment area.

Current Field Office policy is to consider wildlife habitat needs prior to implementation of any land treatment projects. The timing, size, and pattern of treatment are adjusted to minimize short-term impacts on sage grouse habitat, and other wildlife habitat. Treatment projects tend to be relatively small in size, and all consider site-specific impacts on sage grouse seasonal habitat needs. At the current scale of implementation, land treatments in the Surprise Resource Area are providing a net benefit to sage grouse habitat.

Current funding levels allow for little land treatment annually. As a result, there is little risk that large portions of sage grouse breeding habitat would be treated, other than through prescribed fire on the higher elevation mountain big sagebrush sites.

19. ["All wildfires and prescribed burns should be evaluated as soon as possible to determine if reseeding is necessary to achieve habitat management objectives. If needed, reseed with sagebrush, native bunchgrasses, and forbs whenever possible" (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** All burns of a significant size (over about 100 acres), or which occur in areas susceptible to noxious weed or cheatgrass invasion, are immediately evaluated to determine if reseeding is necessary. Where it is determined that reseeding is needed, a seed mixture that is appropriate for the

site is determined, and reseeded as soon as possible (generally before the next growing season). It is current BLM policy to support native species habitat and communities whenever possible. Therefore, rehabilitation seed mixtures are always composed of native species of grasses, shrubs (including big sagebrush), and forbs. Non-native species, such as crested wheatgrass and forage kochia are only used in areas where native species have little or no chance of successfully reseeding.

20. [“Until research unequivocally demonstrates that use of tebuthiuron and similar acting herbicides to control sagebrush has no long-lasting negative impacts on sage grouse habitat, use these herbicides only on an experimental basis and over a sufficiently small area that any long-term negative impacts are negligible. Because these herbicides have the potential of reducing but not eliminating sagebrush cover within grouse breeding habitats, thus stimulating herbaceous development, their use as sage grouse habitat management tools should be closely examined”, (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Due to political pressure surrounding the safety of agricultural chemical use on public lands (primarily concerns about wildlife habitat, water quality, and recreational human exposure), herbicides have not been used in the Surprise Resource Area for many years. Experiments, using herbicide spraying on sites with severely degraded understories, are currently planned on the Home Camp Allotment (Massacre PMU) to determine if such treatment can recover native herbaceous understories. However, research cannot be said to have unequivocally demonstrated that herbicides have no long-lasting negative impacts on sage grouse habitat, or any other resource value on public lands. Until it does, political pressure to not use chemicals on public lands will continue. Therefore, it is not anticipated that herbicide use will become a standard, widespread practice for restoring sites with degraded understories in the near future.

29. [“Maintain sagebrush communities on a landscape scale, allowing sage grouse access to sagebrush stands with canopy cover of 10-30% and heights of at least 25-35 cm regardless of snow cover. These areas should be high priority for wildfire suppression and sagebrush control should be avoided”, (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** There is virtually no risk that sagebrush will not be maintained on a landscape scale in the Surprise Resource Area. Sage grouse have, and will continue to have, access to a wide variety of sagebrush communities with appropriate canopy covers and heights suitable for winter habitat needs throughout the Surprise Resource Area and the Vya PMU.

It is current Surprise Field Office policy to suppress all wildfires, regardless of where they occur. To date, current staffing levels have been sufficient to respond to all fires as they occur. Therefore, fire suppression has not needed to be prioritized.

Should prioritization for wildfire suppression become necessary in the future, urban interface areas would probably receive the highest priority, followed by low elevation sites prone to cheatgrass invasion (including large portions of sage grouse winter habitat), then by high elevation areas.

Few land treatments are currently conducted in the resource area. All are relatively small in size, and all consider site-specific impacts on sage grouse seasonal habitat needs, including winter habitat. The timing, size, and pattern of treatment are adjusted to minimize short-term impacts on sage grouse, and other wildlife habitat. At the current scale of implementation, land treatments in the Surprise Resource Area are providing a net benefit to sage grouse habitat.

30. ["Protect patches of sagebrush within burned areas from disturbance and manipulation. These areas may provide the only winter habitat for sage grouse and their loss could result in the extirpation of the grouse population. They are also important seed sources for sagebrush re-establishment in the burned areas. During fire suppression activities do not remove or burn any remaining patches of sagebrush within the fire perimeter", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** There is no active fire plan to specify areas that should be left with islands of unburned fuel. As a result, general firefighting techniques are standard practice, burning out islands of unburned fuel during wildfire suppression. At the current scale of wildfire, prescribed fire, and vegetation treatment, there is virtually no risk of losing all, or even a significant portion, of the sage grouse winter habitat in the Surprise Resource Area. However, the practice of removing unburned islands of fuel does slow re-establishment of sagebrush within burned areas.

31. ["In areas of large-scale habitat loss (>40% of original winter habitat), protect all remaining habitats", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** There are no areas within the Surprise Field Office that can be characterized as having lost more than 40% of the original sage grouse winter habitat. See WAFWA Guideline #9 for further discussion.

32. ["Reseed former winter range with the appropriate subspecies of sagebrush and herbaceous species unless the species are re-colonizing the area in a density that would allow recovery within 15 years", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** All burns of a significant size (over about 100 acres), or which occur in areas susceptible to noxious weed or cheatgrass invasion, are immediately evaluated to determine if reseeding is necessary. Where it is determined that reseeding is needed, a seed mixture that is appropriate for the site is determined, and reseeding is completed as soon as possible (generally before

the next growing season). Depending on the availability of seed mixtures, rehabilitation seed mixtures always include native species of grasses, shrubs (including big sagebrush), and forbs.

Most high elevation areas that burn recover adequate sagebrush cover within 15 years, regardless of the extent of the burn. Most low elevation areas that burn require reseeding to prevent cheatgrass encroachment; they frequently do not recover sagebrush and therefore good sage grouse habitat regardless of how they are seeded. Most mid elevation areas do not burn large or blocky areas; they tend to burn in small mosaics, up drainages, and on deeper, more productive soils. Sagebrush seed sources are present adjacent to the burned areas, and these sites rarely require seeding to re-establish good sage grouse habitat.

33. ["Discourage prescribed burns >50 ha and do not burn >20% of an area used by sage grouse during winter within any 20–30 year interval (depending on estimated recovery time for the sagebrush habitat) ", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Due to cost constraints, most prescribed burns in the Surprise Resource Area cover more than 50 ha (124 acres). However, few prescribed burns are conducted in sage grouse winter habitat. Current funding levels allow for little land treatment annually. As a result, priority is given to areas that will respond reliably well, and which will benefit the largest number of resources. In general, these are higher elevation sites, which provide sage grouse breeding and brood rearing habitat, rather than winter habitat. Few treatments are proposed in sage grouse winter habitat because rehabilitation at these elevations is very slow and expensive. Fire in particular, is rarely prescribed on low elevation Wyoming big sagebrush sites because of their susceptibility to cheatgrass encroachment.

**Conservation Measure(s):** *Rehabilitate burned areas when needed. Use native seed mixtures which include sagebrush and forbs that are appropriate for the site. Emphasize full fire suppression on R-0 sites to prevent conversion to R-1 sites.*

**Responsible Parties:** *BLM*

**Monitoring:** *Inspect seeded areas during the first two growing seasons to ensure seed mixtures are appropriate and effective.*

**Conservation Measure(s):** *Keep livestock off of burned areas for a minimum of two growing seasons (rest pasture, fence burned area, or herd livestock). Develop further prescriptive grazing management as needed to ensure meeting both overstory and understory objectives.*

**Responsible Parties:** *BLM, livestock permittees*

**Monitoring:** *Frequently check burned areas for livestock during the first two growing seasons following fire to ensure compliance with rest. Periodically check burned areas to ensure compliance with further grazing management prescriptions. Monitor burned*

*area vegetation to ensure overstory and understory objectives are being met. Vegetation monitoring should include, 1) annual site inspections/photo points to confirm that native, perennial vegetation has stabilized soils and that cheatgrass and noxious weeds are not encroaching, and 2) line transects every 3-5 years to track recovery of sagebrush and herbaceous vegetation canopy cover.*

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**Risk #2: Long-term or permanent conversion of sagebrush communities to perennial herbaceous communities.**

**Season/Habitat affected: All**

**Contributing Management Action 1: Non-native species seedings**

**Risk Rating: Low**

**Contributing Management Action 2: Fire on low elevation areas with strong understories.**

**Risk Rating: Low**

There are eleven crested wheatgrass seedings, covering approximately 21,000 acres in the Vya PMU. This represents approximately 4% of the acres that occur in the PMU. The majority of acres treated, was in response to the Cowhead/Massacre Land Use Plan and had specified leave areas. They were completed to "adhere to Nevada Department of Wildlife, "Guidelines for Vegetal Control Programs in Sage Grouse Habitats in Nevada (1969, revised 1972)." All of these early seedings were planted primarily to various varieties of crested wheatgrass, sometimes including alfalfa or clover for big game. These seedings are used to defer livestock grazing of native rangelands. At this time the BLM has no plans to re-introduce sagebrush to these areas or manage for an increase in native species. At least one of these seedings, however, the 1982 Calvary Camp seeding, has shown sagebrush reinvasion with densities of 10.8 to 23.5 % in June of 2000.

The risk of permanently converting additional acres of sagebrush communities to perennial herbaceous communities as a result of non-native species seedings is low. The majority of the acres identified for vegetation treatment (spraying or seeding) in the Cowhead/Massacre Land Use Plan have been completed (see Appendix #2, Subunit #2, decision #14 and Subunit #3, decision #8) and there are no plans to develop additional seedings. Most existing seedings would be maintained as herbaceous communities. In addition, it is current BLM policy to support native species habitat and communities whenever possible. In the future, where seedings need maintenance, sage-grouse and other wildlife species habitat needs will be considered in terms of the percentage of the area which is treated annually and over time, the pattern of treatment (mosaic vs block), the type of treatment (mechanical, chemical, fire), and the species used to reseed the area following treatment.

The risk of permanently converting additional acres of sagebrush communities to perennial herbaceous communities as a result of fire on low elevation areas with strong understories is also low. Fire is rarely prescribed on low elevation areas, regardless of the condition of the understory, because of the susceptibility of these areas for cheatgrass encroachment and because these sites seldom become significantly more valuable for either wildlife habitat or livestock forage following fire. When fire is prescribed on low elevation areas, the prescription is cool, tightly controlled, and covers small acreages. Wildfire starts on low elevation sagebrush communities with strong native perennial understories are rare in the Vya PMU. The native bunchgrass and sagebrush communities on these sites do not normally provide adequate continuous fuels to carry wildfire under anything other than unusually hot, windy, and dry weather conditions. The natural fire regime on these sites is much longer than on higher elevation sites.

**WAFWA Guidelines:** (See Appendix #1). 5, 6, 7, 8, 9, 11, 13, 19, 29, 31, and 32 See discussion under Risk #1; 17.

17. ["When restoring habitats dominated by Wyoming big sagebrush, regardless of the techniques used (e.g., prescribed fire, herbicides), do not treat >20% of the breeding habitat (including areas burned by wildfire) within a 30-year period (Bunting et al. 1987). The 30-year period represents the approximate recovery time for a stand of Wyoming big sagebrush. Additional treatments should be deferred until the previously treated area again provides suitable breeding habitat (Table 3). In some cases, this may take <30 years and in other cases >30 years. If 2,4-D or similar herbicides are used, they should be applied in strips in a manner that minimizes their effect on forbs. Because fire generally burns the best remaining sage grouse habitats (i.e., those with the best understory) and leaves areas with sparse understory, use fire for habitat restoration only when it can be convincingly demonstrated to be in the best interest of sage grouse "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Cowhead/Massacre LUP, Decision #16 C, 3(a) and 4(a) – Allow for treating up to 90% of any particular treatment area.

Current funding levels allow for little land treatment annually. As a result, priority is given to areas that will respond reliably well, and which will benefit the largest number of resources. In general, these are higher elevation sites, which provide summer habitat for wildlife, as well as mid/late season forage for livestock and wild horses, and recreational opportunities. These higher elevations are capable of supporting taller grass species and denser herbaceous understories, which produce better sage grouse nesting habitat. Few treatments are proposed in Wyoming big sagebrush sites because rehabilitation at these elevations is very slow and expensive, and these sites generally do not have the potential to produce ideal sage

grouse nesting habitat. Fire in particular is rarely prescribed on Wyoming big sagebrush sites because of their susceptibility to cheatgrass encroachment.

There is little risk of deliberately treating too many acres of Wyoming big sagebrush sites per year. The larger risk in Wyoming big sagebrush sites is not treating them. This allows them to continue producing less herbaceous vegetation than is ideal for successful sage grouse nesting. Ultimately, if the sagebrush overstory becomes too dense, the understory is weakened and the sites become even more susceptible to cheatgrass invasion.

**Conservation Measure(s):** *Where possible, use native seed mixtures appropriate to the soil, climate and land form. Use management to increase sagebrush in existing seedings.*

**Responsible Parties:** *BLM and Permittees*

**Monitoring:** *Frequently check burned areas for livestock during the first two growing seasons following fire to ensure compliance with rest. Periodically check burned areas to ensure compliance with further grazing management prescriptions. Monitor burned area vegetation to ensure overstory and understory objectives are being met. Vegetation monitoring should include, 1) annual site inspections/photo points to confirm that native, perennial vegetation has stabilized soils and that cheatgrass and noxious weeds are not encroaching, and 2) line transects every 3-5 years to track recovery of sagebrush and herbaceous vegetation canopy cover.*

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**Risk #3: Conversion of sagebrush communities to annual herbaceous communities or noxious weeds**

**Season/Habitat affected: All**

**Contributing Management Action 1: Fire on areas with weak understories, usually at low elevations.**

**Risk Rating: Medium**

**Contributing Management Action 2: Noxious weed invasion**

**Risk Rating: Low to Medium**

The risk of conversion of sagebrush communities to annual herbaceous communities is probably moderate. Approximately 12% (58,970 acres) of the Vya PMU has the potential to be dominated by cheatgrass. Cheatgrass is a strong component of the understory on many of the lowest elevations, and it is very competitive with native herbaceous vegetation, especially when these areas burn. Historic livestock grazing practices that removed the understory vegetation contributed to the establishment of cheatgrass; rehabilitating these communities requires brush disturbance, seeding, and

Careful livestock management. Rehabilitation in these communities is very slow, risky, and extremely expensive. As a result, little rehabilitation has been attempted in areas with strong cheatgrass components until after a wildfire has burned through the community and cheatgrass has become the dominant (or sole) species on the site. Aggressive fire suppression is emphasized on sites with strong cheatgrass components, in an attempt to prevent them from becoming solid stands of cheatgrass; however, fires which start in these communities are frequently wind driven, fast moving, and difficult to control.

The risk of conversion of sagebrush communities to noxious weeds is low. The seed source and vectors to transport seed (roads, vehicles, livestock, wind, and water) are here. The type of noxious weeds that tend to occupy sagebrush habitat, however, generally require significant soil disturbance such as; that found along roads and heavily used livestock/wildhorse trails, around livestock/wild horse watering sites, and around mines, excavations, agricultural sites, and project developments.

Looking only at the point data collected by the Surprise Resource Area as well as from various other agencies, known weeds found in the Vya PMU include; perennial pepperweed, Scotch thistle, Bull thistle, Canada thistle, Mediterranean sage, and Dyers woad (Table 1). The 76-point data for the Vya PMU along with staff knowledge show that most weeds are located on private lands. About 22% (17) of these point datum were in the 0.1 to 5 acre classes with the remainder less than 0.1 acres. Canada thistle had the most occurrences (n=27) followed by Scotch thistle (n=16) and Perennial pepperweed (n=12). Although most weeds on the Surprise Resource Area occur on private lands, cooperative efforts have allowed much of the known Scotch thistle and Perennial pepperweed populations in the Vya PMU to either be mechanically removed or chemically treated. Canada thistle has not generally been treated due to its widespread location around moist habitats and along streams, as well as due to higher priority weeds reducing funding for removal. Due to this fact, Canada thistle can be seen as a threat to summer brood rearing habitat for sage grouse. The risk is primarily due to invasion of meadow communities along riparian corridors, rather than conversion of sagebrush communities.

**Table #1: Noxious Weeds in the Vya PMU**

<b>Species</b>	<b>Some known locations in the Vya PMU</b>	<b>Susceptible Sites</b>
<b>Perennial Pepperweed</b>	<b>12 populations.</b> All locations within 1 mile of each other, about 3 miles east of Fort Bidwell, California. Most occur in Long Canyon, one adjacent to Poison Creek.	Strongly associated with water in perennial and ephemeral drainages and wetlands. Also associated with roads and disturbed areas. Aggressive suppression efforts.
<b>Scotch Thistle</b>	<b>16 populations.</b> Most known locations occur in Long Valley. Also known in Poison Creek, Mosquito Valley and Sand Creek.	Usually associated with disturbed areas. Aggressive suppression efforts.
<b>Bull Thistle</b>	<b>10 populations.</b> Widely scattered, some locations include Big Mud Lake, Fee Reservoir, and Mosquito Valley area.	Closely associated with springs and wet areas. Non-aggressive suppression
<b>Canada Thistle</b>	<b>27 populations.</b> Locations along Cowhead Slough, Fee Reservoir and Poison Creek, Mosquito Valley, and scattered north to south in Long Valley.	Disturbed areas in/near water (dams, roads, reservoirs) Moderate suppression efforts.
<b>Dyers Woad</b>	<b>7 populations.</b> Along roads to Lake Annie and Fee Reservoir.	Roads and disturbed areas Aggressive suppression efforts.
<b>Mediterranean Sage</b>	<b>4 populations.</b> A few scattered groups around Mosquito Valley and Long Valley, also east of Big Mud Lake.	Roads and disturbed areas Aggressive suppression efforts.

**WAFWA Guidelines:** (See Appendix #1). 5, 6, 7, 8, 9, 11, 14, 19, 29, 30, 31, 32, and 33 See discussion under Risk #1; 16 and 21

16. [“Do not use fire in sage grouse habitats prone to invasion by cheatgrass and other invasive weed species unless adequate measures are included in restoration plans to replace the cheatgrass understory with perennial species using approved reseeding strategies. These strategies could include, but are not limited to use of pre-emergent herbicides (e.g., Oust®, Plateau®) to retard cheatgrass germination until perennial herbaceous species become established ”(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Rehabilitation in communities with a strong cheatgrass component is very slow, risky, and extremely expensive. As a result, little rehabilitation has been attempted in these areas until after a wildfire has burned through the community and cheatgrass has become the dominant (or sole) species on the site. Fire is rarely prescribed on low elevation areas because of their susceptibility to cheatgrass encroachment, and because these sites seldom become more valuable for either wildlife habitat or livestock forage following fire. Where rehabilitative fire is prescribed on low elevation areas, the prescription is cool, tightly controlled, and covers small acreages.

Due to political pressure surrounding the safety of agricultural chemical use on public lands (primarily concerns about wildlife habitat, water quality, and recreational human exposure), pre-emergent herbicides have not been used in the

Surprise Resource Area for many years, and it is not anticipated that herbicide use will become a standard, widespread practice for restoring sites with cheatgrass encroachment in the near future.

21. ["Avoid land use practices that reduce soil moisture effectiveness, increase erosion, cause invasion of exotic plants, and reduce abundance and diversity of forbs ", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** With the exception of non-native species seedings, all of the lands in the Surprise Field Office are being managed for mid-, late-, or potential natural communities, as defined by the NRCS ecological site potentials (see Cowhead/Massacre LUP; Subunit #1, decision #6; Subunit #2, decision #5; Subunit 3, decision #4. By definition, management for mid-seral or later ecological condition should maintain soil moisture retention, reduce erosion, reduce the likelihood of exotic plant invasion, and maintain the appropriate abundance and diversity of native forbs.

Many of the land uses that are allowed on BLM managed lands in the Vya PMU, including livestock and wild horse grazing, off highway vehicles, and dispersed and concentrated recreation result in localized impacts that reduce soil moisture retention, increase erosion, increase invasion by exotic plant species, and reduce the abundance and diversity of forbs. These impacts are frequently higher in sage grouse summer habitat because livestock, wild horses, and recreational users concentrate their activities around water. These activities, and the resulting impacts, cannot be completely avoided. However, the impacts are mitigated, where possible, through livestock management systems, livestock and wild horse stocking levels, seasonal and permanent road closures, controls on dispersed camping areas, and mine site and reclamation plans. The vast majority of the planning decisions and land management policies in the Surprise Resource Area are designed to minimize these types of impacts.

See Cowhead/Massacre LUP - General Decisions #3, 4, 5, 15, and 16; Subunit #1, Decisions #6, 7, 9, and 10; Subunit #2, Decisions #1, 5, 6, and 15; Subunit #3, Decisions #1 and 4. See Allotment Management Plans, Annual Operating Plans, Multiple Use Decisions, Wildfire Rehabilitation Plans, Rangeland Health Standards and Guidelines.

**Conservation Measure(s):** *Initiate emergency rehabilitation measures using site specific seeding or other appropriate treatments with emphasis on low elevation and/or south facing slopes. Increase priority for fire suppression and Emergency Site Rehabilitation (ESR) on R-2 sites to prevent shift to an R-4.*

**Responsible Parties:** **BLM**

**Monitoring:** *Vegetation monitoring should include, 1) annual site inspections/photo points to confirm that native, perennial vegetation has stabilized soils and that*

*cheatgrass and noxious weeds are not encroaching, and 2) line transects every 3-5 years to track recovery of sagebrush and herbaceous vegetation canopy cover.*

***Conservation Measure(s):*** *Aggressively treat noxious weed and other invasive plants where they threaten sage-grouse habitat.*

***Responsible Parties:*** *BLM, local counties*

***Monitoring:*** *Monitor treatments annually until controlled/eliminated.*

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#### **Risk #4: Conversion of sagebrush to juniper**

**Season/Habitat affected: All**

**Contributing Management Action: Lack of fire/disturbance in areas susceptible to juniper encroachment.**

#### **Risk Rating: High**

As a result of long-term fire suppression, western juniper, which naturally occurs on fire-safe sites along ridges, is encroaching down slopes into sagebrush communities. The encroachment is quickest on mountain big sagebrush sites, especially in deeper soils, on north-facing slopes, and along ephemeral drainages. Encroachment is also occurring more slowly in some low sagebrush, and Wyoming big sagebrush sites. As the density of juniper increases, the health of the understory communities declines. The vigor and density of brush species is reduced first and the herbaceous community is affected later. Eventually, little or no understory vegetation remains, and the site is converted to a monotypical juniper community. Once the shrub understory collapses, effective control of juniper encroachment becomes much more difficult, expensive, and dangerous for fire crews. Because there are no shrubs to provide ladder fuels, prescriptions for fire become hotter and riskier, and can cause extreme fire behavior. Recovering the understory after such hot fires is also more difficult, as the heat of the fire destroys much of the seedbank. The only alternative to prescribed fire in recovering these sites is hand-cutting juniper trees, a very expensive and time-consuming activity.

Sage grouse will use areas with some juniper during late brood rearing and wintering, so long as a healthy sagebrush understory remains. However, juniper trees are used by raptors for perch sites while they are hunting. As a result, sage grouse frequently abandon lek, nesting, and early brood rearing areas that are encroached upon by juniper long before the sagebrush understory is affected.

Approximately 107,000 acres (22%) of the Vya PMU is classified as encroached upon by juniper (See Appendix 3 for definition). So long as fire suppression remains high in

mountain big sagebrush communities, the risk of converting additional acres of sage-grouse habitat to juniper sites will remain high. As time goes on, recovering these sites to sagebrush communities will become more difficult.

**WAFWA Guidelines:** (See Appendix #1). 1, 5, 13, and 18. See discussion under Risk # 1; 2.

2. ["Use appropriate vegetation treatment techniques (e.g., mechanical methods, fire) to remove junipers and other conifers that have invaded sage grouse habitat (Commons et al. 1999). Whenever possible, employ vegetation control techniques that are least disruptive to the stand of sagebrush, if this stand meets the needs of sage grouse.", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** The Surprise Field Office is conducting numerous projects to reduce populations of mature juniper by hand cutting juniper in sagebrush and riparian communities. However, due to current funding levels, the number of acres being treated is insignificant when compared to the number of acres of sage grouse habitat which have been, or which will be, converted to mature juniper sites. Preventing large portions of sagebrush communities from becoming mature juniper sites will require either a much greater number of acres of mechanical land treatment, or more invasive techniques (fire) on sites that are currently producing good sage grouse habitat (mountain big sagebrush communities with numerous young juniper). In the short-term, these types of prescribed fires will have localized impacts on sage grouse habitat. However, in the long term, thousands of acres of sage grouse habitat will be retained.

**Conservation Measure(s):** *Mechanical treatment or prescribed fire. Treat subject in revision of AMP's, new Resource Management Plans (RMP's), current and projected rangeland projects.*

**Responsible Parties:** **BLM**

**Monitoring:** *Set up repeatable photo-points, take before and after photos of site. Revisit photo points every 5 years.*

**Conservation Measure(s):** *Mechanical treatment or prescribed fire.*

**Responsible Parties:** **Private land owners**

**Monitoring:** *Set up repeatable photo-points, take before and after photos of site. Revisit photo points every 5 years.*

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**Risk #5: Loss of sagebrush habitat to mining and agricultural or urban expansion**

**Season/Habitat affected: All**

**Contributing Management Action 1: Mining**

**Risk Rating: Low**

**Contributing Management Action 2: Urban and agricultural expansion**

**Risk Rating: Low**

There are no known mining claims in the Vya PMU. One "larger-scale" mining operation is known to have existed in the PMU, however, a mercury extraction operation in the Bald Mountain area. That mine went out of operation 60 to 70 years ago and little to no information exists for the mine. The extent of the mine appears to cover at least several scattered acres along an access road with much of the affected area currently overgrown with vegetation. About the only current "mining" activities in the PMU are gravel pits. These are associated with road maintenance activities and are fairly small and scattered. If gold prices were to go up substantially in the near future, it is conceivable that some new mining claims may show up. The overall risk of new mining operations, however, is considered low.

Approximately 83,000 acres (16.5%) of the Vya PMU is under private ownership. Private land is scattered throughout the PMU, mainly associated with water at springs and along drainages. Larger blocks of private lands associated with ranching activities are found in the north half of the area around Mosquito Valley, Cowhead Lake, and Coleman Valley. These large blocks of land are expected to remain as large tracts of land for the near future. Some seasonal cabins and yearlong residences exist, these also primarily associated with ranching activities. Agricultural expansion has probably reached its maximum extent with the largest operations around north Long Valley and Mosquito Lake, Coleman Valley and Cowhead Lake.

Land within the PMU has some opportunity for development, albeit probably small, and primarily in the form of seasonal recreational cabins and expansion around existing agricultural development. Many smaller private parcels with "absentee" owners exist in the PMU. These smaller parcels have a higher risk of being sold and private cabins built on them yet the risk is considered low overall. The PMU is relatively remote and has not seen any appreciable development in the last 10 years, however, some indications are that development is increasing. Few well graveled roads, the lack of nearby services, and winter weather conditions generally prohibit late winter and early spring use of the area. The risk to sage grouse from development in the near future is therefore considered low in the Vya PMU.

**WAFWA Guidelines:** (See Appendix #1). P(b); 6, 7, 8, and 9. See discussion under Risk #1.

P(b). ["Although mining and energy development are common activities throughout the range of sage grouse, quantitative data on the long-term effects of these activities on sage grouse are limited. However, some negative impacts have been documented (Braun 1998, Lyon 2000). Thus, these activities should be discouraged in breeding habitats, but when unavoidable, restoration efforts should follow procedures outlined in these guidelines", (Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Cowhead/Massacre General Decisions # 9, 10, 12, 13. Little mining development has occurred in the Vya PMU and nothing substantial has occurred in recent decades. Field Office policy is to consult with state wildlife agencies when developing site plans for energy and mining activities. Bonds for restoration of sites and/or to mitigate site impacts are required to ensure that impacts to the resources are minimized. The field office negotiates with energy and mining development companies to avoid disturbing critical wildlife habitat, including sage grouse breeding habitat, during development activities. However, mining and energy development activities cannot be prevented due to concerns over impacts to wildlife species that are not federally listed as threatened or endangered.

**Conservation Measure(s):** *Avoid surface occupancy within 2 miles of known/occupied sage-grouse use areas, consider off site mitigation. Reclaim mining areas after disturbance with native seeding.*

**Responsible Parties:** **BLM**

**Monitoring:** *Revisit adjacent leks annually to track any changes due to presence of mine. Establish photo-points and site inspect annually at first to establish that seed mix is appropriate for site, then revisit every 3-5 years.*

**Conservation Measure(s):** *Retain public lands that contain leks or other important habitat unless acquisition would result in obtaining equal or better habitat.*

**Responsible Parties:** **BLM, local and state governments.**

**Monitoring:** *None*

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**Risk #6: Conversion of forb dominated meadows to mat grass dominated meadows**

**Season/Habitat affected: Brood-rearing**

**Contributing Management Action1: Underutilization of meadows**

**Risk Rating: Low**

**Contributing Management Action 2: Lack of fire in meadows**  
**Risk Rating: Low**

There are approximately 45 miles of perennial streams and 665 miles of intermittent streams in the Vya PMU. In the Vya PMU, both stream types are associated with perennial springs. Perennial streams are fed by snowmelt and/or larger spring systems, an example being the Twelvemile Creek system. Intermittent streams either receive only early season snowmelt e.g., upper Rock Creek, or have small springs that don't allow above surface stream flow later in the year, portions of lower Rock Creek, Bald Mountain Canyon. Width of riparian areas varies from a few feet wide in smaller streams to several acres in size in areas associated with larger spring systems e.g., Twelvemile Creek and Horse Creek.

All of the Vya PMU is allocated to livestock and/or wild horses and is grazed during the growing season at least one year in three. Riparian areas within the PMU generally receive substantial levels of utilization during the growing season, especially later into the year as the weather becomes hotter. This fact alone is why riparian areas and meadows cannot become mat grass dominated communities within the Vya PMU. In addition, about 1,950 acres of springs and meadows are inside livestock/wild horse enclosures within the PMU. Although information on these is sporadic at best, none are known or thought to be mat grass dominated either. This is because of periodic grazing by livestock and/or wild horse due to downed fences and gates left open.

Although fire risk is low throughout the PMU and therefore lower in association with meadows, prescriptive fires have been used in the Surprise Resource Area to meet various resource goals, e.g., Massacre cabin. The risk, therefore, of converting large portions of the riparian areas and meadows in the Vya PMU to mat grass dominated communities due to lack of utilization or fire is low.

**Table #2: Meadow/Spring Enclosures in the Vya PMU**

Location	Acres	Condition
Biebe Spring, Massacre Lakes Allotment	1002	Unknown condition
Indian Spring, Massacre Lakes Allotment	54	Unknown condition
Post Spring, Massacre Lakes Allotment	29	1999 visit found fence corners down
Rock Creek, Nevada Cowhead Allotment	475	Built 2002. Slow, upward trend prior to fencing
Sand Creek, Sand Creek Allotment	199	Slow upward trend, intermittent grazing
Sand Creek, Sand Creek Allotment	52	Slow upward trend, intermittent grazing
Sand Creek, Sand Creek Allotment	106	Slow upward trend, intermittent grazing
Sand Creek, Sand Creek Allotment	19	Slow upward trend, intermittent grazing
Sagebrush Spring, Sand Creek Allotment	1	Unknown

**WAFWA Guideline:** (See Appendix #1). See discussion under Risk #3; 21.

**Conservation Measure(s):** *In areas that have the potential to produce mat grass meadows and that are currently not allotted to livestock or horses, prescriptive graze or burn.*

**Responsible Parties:** *BLM*

**Monitoring:** *Set up photo-points and revisit every 3-5 years for areas that are grazed, every year for areas that are burned.*

**Conservation Measure(s):** *Where appropriate, reintroduce fire onto landscape.*

**Responsible Parties:** *BLM*

**Monitoring:** *Set up photo-points and revisit every year up to five years after burn, GPS fire size to track any changes.*

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## **Risk #7: Conversion of meadows to bare ground**

**Season/Habitat affected: Brood-rearing**

**Contributing Management Action: Overutilization of meadows, usually associated with water sources**

**Risk Rating: Low to Medium**

Since 1998, thirteen Rangeland Health Assessments have been conducted on allotments in the Vya PMU. All but one allotment (Little Basin) have had write ups completed. A second allotment, Bull Creek, had no assessable waters in the PMU. Of the remaining eleven, all but one met standards or were "not met but progressing towards", standards for stream health and riparian/wetlands. The Board Corral Allotment did not meet standards for stream health or riparian wetlands and was not progressing towards those goals. Specifically, problems were found with down cutting of meadows and encroachment of upland species onto the meadows. Areas of bare ground in the meadows were also evident (personal observation). Although in the short term some areas of bare ground are to be expected with grazing, those that occur year after year and lead to degradation of stream function (sediment catching and bank building) are those of concern. Management is in place to mitigate problems in most areas including decisions on riparian stubble height requirements, construction of additional exclosures, deferred use, periodic rest, and early turnoff for regrowth e.g., Terms and Conditions of the Warner sucker Biological Opinion covering North Cowhead and Nevada Cowhead Allotments. Several areas where problems are known are waiting for funding e.g., revision of Post Spring exclosure design. Most AMPs call for maintaining greater than 90% ground cover on meadows, horse plans recognize the significance of season-long wild horse use on meadows, and Rangeland Health Assessments are picking up the areas (and addressing the causes) where use to bare ground on meadows is still occurring e.g., portions of Bald Mountain Canyon. Therefore, the risk of converting meadows to bare ground is low to moderate.

**WAFWA Guideline:** (See Appendix #1). 21. See discussion under Risk #3.

**Conservation Measure(s):** *Where livestock grazing results in utilization determined to be detrimental to habitat quality, changes in grazing management will be made pursuant to 43 CFR 4180.1(d).*

**Responsible Parties:** **BLM**

**Monitoring:** *Establish photo-points and green-lines if not already in place and revisit every 3-5 years. Implement stubble-height and soil alteration limitations and measure several times each season for compliance.*

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### **Risk #8: Conversion of meadows to upland vegetation**

**Season/Habitat affected:** **Brood-rearing**

**Contributing Management Action:** **Reduced hydrologic functionality due to head-cutting, soil alteration (roads, heavy grazing), confinement of floodplain (roads, compaction) or other causes.**

**Risk Rating:** **Medium**

To this point, current Rangeland Health Assessments have only indicated that the Board Corral Allotment is showing signs of head cutting, dewatering, and invasion by upland species (See discussion under Risk 7). Measures have already been undertaken to correct these problems such as specific stubble height requirements for riparian areas, adjustments of use dates, specific salting locations defined, and turning out of cattle, which have not previously grazed the allotment. This last stipulation is in place to help with cattle distribution.

Although most meadows on the Surprise Resource Area have roads to and through them, and most drainage have roads along them, the inherent rockiness and ephemeral nature of many systems helps to offset this risk, e.g. portions of Horse Creek. Roads, especially in drainages, continue to impact systems but are politically and logistically difficult to close or re-route.

More than one half of the thirty allotments that either fully or partially occur in the Vya PMU still need to be assessed using the Rangeland Health Standards and Guidelines. Combined with the lack of knowledge concerning these aspects on private lands, and the supposition that there are likely more problem areas to be found in future RHA's, the risk of conversion of riparian meadows to upland vegetation is rated as moderate.

**WAFWA Guidelines:** (See Appendix #1). 21 See discussion under Risk #3; 22.

22. [“Avoid removing sagebrush within 300 m of sage grouse foraging areas along riparian zones, meadows, lakebeds, and farmland, unless such removal is necessary to achieve habitat management objectives (e.g., meadow restoration) ”(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Cowhead/Massacre LUP, General Decision #16, C, 1(b) - Leave 100 yard buffer zones around meadows and along drainages.

Surprise Field Office policy is to leave a 100 yard buffer zone around meadows and streams to maintain wildlife (primarily sage grouse) hiding cover. Exceptions to this policy occur where fuels management and structure protection require sagebrush reduction less than 100 yards from riparian zones, and where riparian zones have been converted to upland sagebrush habitat that may be recovered to riparian vegetation with proper manipulation and management.

**Conservation Measure(s):** *Where livestock grazing results in utilization determined to be detrimental to habitat quality, changes in grazing management will be made pursuant to 43 CFR 4180.1(d). Do not build new roads in riparian areas, where a problem consider relocating.*

**Responsible Parties:** *BLM, permittees.*

**Monitoring:** *Establish photo-points and green-lines if not already in place and revisit every 3-5 years. Implement stubble-height and soil alteration limitations and measure several times each season for compliance. Conduct RHA's 1 year in 15, and Proper Functioning Condition (PFC) as needed.*

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## **Risk #9: Insufficient stubble for successful nesting cover**

**Season/Habitat affected: Nesting**

**Contributing Management Action: Short-term over-utilization.**

**Risk Rating: Medium to High**

All of the allotments in the Vya PMU have livestock utilization criteria of moderate use (40%-60%) or less. See Appendix #2: Cowhead/Massacre Planning Unit, General Decision #3; and Livestock Utilization Criteria table.

There are four wild horse management areas (HMA's) covering about 116,900 acres within the Vya PMU (23% of the PMU). Only a small percentage of the Nut Mountain HMA is within the PMU (See Table 3). The first two, Bitner and Nut Mountain, have Appropriate Management Levels (AML's) in place. The second two, Massacre Lakes and Carter Reservoir, should have AML's set in the near future. Although neither Massacre

Lakes nor Carter Reservoir have had surveys completed to set their AML's, current estimates indicate that they will be set between 25-50 head. This would give a total of around 100 to 160 AML's. Currently, the actual number of horses within the HMA's is thought to be approximately 370. All four areas have been gathered since 1989 with Nut Mountain being gathered as recently as 2000. Carter Reservoir is scheduled for gather in 2003.

As horse numbers increase, use levels in wild horse concentration areas will also increase, resulting in locally heavy use, particularly near water sources and in sage grouse spring/summer use areas within the four herd management areas. Table 3 shows the estimated population size by the Fall of 2004.

**Table #3: Wild Horse Management Areas in the Vya PMU**

<b>Wild Horse Herd Area</b>	<b>Acres</b>	<b>AML</b>	<b>Estimated 2002</b>	<b>Estimated Population by Fall of 2004</b>
Bitner	53,608	15-25	41	59
Nut Mountain	40,211 (97 in Vya)	30-55	87	125
Massacre Lakes	39,888	*25-30	51	73
Carter Reservoir	23,303	*30-50	190	274
<b>Total in Vya</b>	<b>116,900</b>	<b>100-160</b>	<b>369</b>	<b>531</b>

\* These are estimates only, AML's not yet set.

Moderate use on grasses in the mid and lower elevations may not provide sufficient cover for nesting sage grouse, however, these areas may be more suitable for spring/summer brood rearing. Dominant grasses at these lower elevations do not usually grow as tall as species on higher elevations, and 40% to 60% use may not leave the 18 cm (7 inches) of herbaceous cover recommended in WAFWA Guideline 5. Some of the mid and lower elevations in the PMU do retain 7" of herbaceous cover, at least every other year. These are areas with healthy native under-stories which are used lightly or which are rested from livestock use every other year and which do not have wild horses.

Most pastures have areas in which livestock and/or wild horses tend to congregate and use is higher. To address this problem of livestock distribution, water has been developed throughout the Surprise Resource Area to the point that there are few areas over a few miles from the nearest livestock water source. In addition, most allotments have specific criteria which prohibit the use of salt on springs, meadows, streams, and in aspen stands. See Appendix #2: Cowhead/Massacre Planning Unit, General Decision #4.

Although definitive numbers aren't available (although local radio collar work may be pointing to these conclusions), and at least at higher elevations with steeper slopes, there doesn't appear to be a lack of nesting cover. Areas that do appear to be lacking

suitable cover for nesting are at lower elevations and on flatter topography (see above). These lower elevation sites while used by sage grouse don't appear to be producing chicks. This appears to be caused by predation on hens due to poor canopy cover at the nesting site. Low elevation sites, especially if associated with water, can often be grazed longer and harder than higher elevation sites.

Sites with less water or that are on steeper slopes either see little use or use later in the season. If cattle are taken off early enough in the season, these sites can retain enough residual cover for nesting the following year. Depending on the operating plan for the allotment, short-term losses in cover can be heavy. As long as cattle are removed during the growing season and/or not all residual cover is removed at the end of the season, hiding cover can still be available for next springs nesting period. This appears to be the case for sage grouse on Bally Mountain which are known to use the steeper slopes to nest. Again, these conditions can vary, and do, dependent on changes in annual operating plans, weather, and the birds themselves. This same scenario of nesting on higher elevation likely occurs throughout the Vya PMU and the Surprise Resource Area as a whole. The risk of maintaining insufficient herbaceous stubble for sage grouse nesting cover is moderate to high as a result of short-term over-utilization.

**WAFWA Guidelines:** (See Appendix #1). 5. See discussion under Risk #1; 10.

10. ["During drought periods (>2 consecutive years), reduce stocking rates or change management practices for livestock, wild horses and wild ungulates if cover requirements during the nesting and brood rearing periods are not met. Grazing pressure from domestic livestock and wild ungulates should be managed in a manner that, at all times, addresses the possibility of drought. ", (Connelly et al. 2000)]

**Surprise Field Office policy/decision:** The field office does not currently have a resource area wide policy that addresses methods for changing management practices for livestock, wild horses, and wild ungulates in the event of drought. The resource area is in the Great Basin where "below normal" amounts of precipitation are the rule rather than the exception. As a result, the wild ungulate population is adapted to cyclical drought events, and is currently not managed in response to drought. In addition, established livestock stocking rates and wild horse appropriate management levels are conservative, and they are usually compatible with meeting resource needs during periods of mild drought.

However, during periods of severe extended drought (generally considered to be less than 70% of median for 2 or more consecutive years), there is no systematic method for determining needed management changes. Wild ungulates, and, in extreme cases, wild horses will self-regulate numbers during periods of drought by experiencing "die-offs", especially during hard winters following dry growing seasons. Decisions to implement livestock and wild horse number reductions and

livestock management changes are made on a case-by-case basis, during the summer. The decisions are generally based on lack of livestock and wild horse water, which leads to heavy localized concentrations of use and poor stock conditions, rather than on cover requirements for sage grouse nesting and brood rearing. In areas where stock water exists only at marginal sources (reservoirs and ephemeral springs), periods of mild to moderate drought may actually result in more nesting cover the following season because larger areas are inaccessible to livestock.

**Conservation Measure(s):** *Temporary livestock exclusion (rest), change in livestock and horse use period or intensity of use, changes in salting or watering use areas.*

**Responsible Parties:** *BLM, permittees*

**Monitoring:** *Use of utilization and stubble-height limitations, which are measured throughout the grazing season.*

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**Risk #10: Low vigor herbaceous vegetation resulting in poor nesting cover and spring forage**

**Season/Habitat affected: Nesting and brood-rearing**

**Contributing Management Action 1: Lack of fire/disturbance in mountain big sagebrush sites.**

**Risk Rating: Medium**

**Contributing Management Action 2: Long-term over-utilization**

**Risk Rating: Medium**

**Contributing Management Action 3: Annual, long duration use in the spring (March, April, and May).**

**Risk Rating: Medium**

**Contributing Management Action 4: Noxious weed and/or cheatgrass encroachment.**

**Risk Rating: Low to Medium**

Most of the Rangeland Health Assessments showed that soils and or biodiversity standards were being met on allotments within the Vya PMU. Vigor of plant communities was rated as good to very high for several allotments and those that did not were moving towards those goals. Only one allotment, Board Corral, not only did not meet the standards for biodiversity or soils but also was not found to be moving towards the goals for biodiversity. Changes in livestock management have been underway since the year 2000 to correct these problems and have included determination of salting locations and residual stubble heights. Noxious weed invasion

is considered a low threat in the Vya PMU. Due to lack of current knowledge for all allotments, however, this risk is rated as moderate.

**WAFWA Guidelines:** (See Appendix #1). 1, 5, 6, 7, 8, 11, 13, 14, 18, 19, 20, 29, 32, and 33 See discussion under Risk #1; 16 and 21 See discussion under Risk #3; 10 See discussion under Risk #9; 15, 25, and 26

15. ["Where the sagebrush overstory is intact but the understory has been severely degraded and quality of nesting habitat has declined (Table 3), use appropriate techniques (e.g., brush beating in strips or patches and interseed with native grasses and forbs) that retain some sagebrush but open shrub canopy to encourage forb and grass growth. ", (Connelly et al. 2000)]

**Surprise Field Office policy/decision:** Cowhead/Massacre LUP, Decision #16 C, 3(c) and 4(c)6/5/20034/23/2003 allow for vegetation treatments where conditions will not improve under other types of management in a reasonable time. Experiments, using spraying and small-scale brush beating on sites with severely degraded understories, are currently planned on the Home Camp Allotment (Massacre PMU) to determine if such treatment can recover native herbaceous understories. Widespread treatment is not planned due to ongoing concerns that treatment may result in invasive species (such as rabbitbrush, cheatgrass and noxious weeds) becoming dominant on these sites.

25. ["Use brush beating or other mechanical treatments in strips 4-8 m wide in areas with relatively high shrub canopy cover (>35% total shrub cover) to improve late brood-rearing habitats. Brush beating can be used to effectively create different age classes of sagebrush in large areas with little age diversity. ", (Connelly et al. 2000)]

26. ["If brush beating is impractical, use fire or herbicides to create a mosaic of openings in mountain big sagebrush and mixed shrub communities used as late brood-rearing habitats where total shrub cover is >35%. Generally, 10-20% canopy cover of sagebrush and <25% total shrub cover will provide adequate habitat for sage grouse during summer. ", (Connelly et al. 2000)]

**Surprise Field Office policy/decision:** Response to 25 and 26. With the exception of past non-native species seedings, land treatments in the Surprise Field Office are conducted with the objective of maintaining or restoring ecological site conditions. Ideally, land treatments should be conducted before the herbaceous understory is reduced to the point that the site is susceptible to noxious weeds or re-seeding is necessary. The few land treatments currently conducted in the resource area are relatively small in size, and all consider site-specific impacts on sage grouse seasonal habitat needs. The timing, size, and pattern of treatment are adjusted to minimize short-term impacts on sage grouse, and other wildlife habitat.

**Conservation Measure(s):** Use prescribed fire, mechanical, or chemical disturbance, or change grazing prescription. Reseed where necessary with adapted species.

**Responsible Parties:** BLM, permittees

**Monitoring:** Establish photo-points and revisit every 3-5 years, establish long term trend transects and revisit 1 year in 10.

**Conservation Measure(s):** Where livestock grazing results in utilization determined to be detrimental to habitat quality, changes in grazing management will be made pursuant to 43 CFR 4180.1(d).

**Responsible Parties:** BLM, permittees

**Monitoring:** Establish utilization standards and monitor 1 year in every 3, establish long term trend transects and revisit 1 year in 10.

**Conservation Measure(s):** Where livestock grazing results in utilization determined to be detrimental to habitat quality, changes in grazing management will be made pursuant to 43 CFR 4180.1(d).

**Responsible Parties:** BLM, permittees

**Monitoring:** Establish utilization standards and monitor 1 year in every 3, establish long term trend transects and revisit 1 year in 10.

**Conservation Measure(s):** Aggressively treat noxious weeds and other invasive plants where they threaten quality of sage grouse habitat.

**Responsible Parties:** BLM, local counties

**Monitoring:** Monitor treatments annually until controlled, use GPS to monitor patch size.

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**Risk #11: Lack of understory for sage grouse nesting cover and spring forage**

**Season/Habitat affected: Nesting and brood-rearing**

**Contributing Management Action 1: Lack of fire/disturbance in Wyoming and Lahontan sagebrush communities.**

**Risk Rating: Medium**

**Contributing Management Action 2: Historic overutilization**

**Risk Rating: Medium**

Although there is an overall lack of fire disturbance on the Surprise Resource Area, grazing has been present in moderate to high amounts for many years. Reasons for the "lack" of disturbance from fire is due to the low number of ignitions, but also due to high initial attack response. Fires in Wyoming big sage sites are often in easier to reach and combined with the knowledge that these sites can easily convert to solid

cheatgrass, receive high priority for suppression. For this reason, as well as the high cost of rehabilitation, fire is not often prescribed for these sites. Higher elevation sites with strong native understories are a better use of time and money. Lahontan sagebrush sites, like other low sage sites, typically do not burn as well due to lower amounts of herbaceous plant material. This of course depends on site conditions as Lahontan is often intermediate in size and function to low and Wyoming sagebrush types. Due to the low numbers of fires within the PMU, the risk of this type of disturbance not creating additional high quality cover and forage is moderate.

While past over utilization has occurred in the PMU and has led to problems in vigor in some areas, current management has addressed most of the problems and future RHA's will address additional areas if needed. Due to Wyoming's location on the landscape, grazing provides moderate to high disturbance on those sites. The risk that current grazing is contributing to low amounts of cover and forage, however, is rated as moderate.

**WAFWA Guidelines:** (See Appendix #1). 1, 6, 7, 8, 11, 13, 14, 19, 29, 32, and 33 See discussion under Risk #1; 17 See discussion under Risk #2; 16 and 21 See discussion under Risk #3; 10. See discussion under Risk #9;15, 25, and 26. See discussion under Risk #10.

**Conservation Measure(s):** *Change grazing prescription to meet goals.*

**Responsible Parties:** *BLM, permittees*

**Monitoring:** *Establish photo-points and long term trend transects. Revisit photo-points every 3-5 years and trend transects every 1 in 10 years.*

**Conservation Measure(s):** *Where livestock grazing results in utilization determined to be detrimental to habitat quality, changes in grazing management will be made pursuant to 43 CFR 4180.1(d). Brush beating, mechanical or other disturbance or re-seeding are also options. Thin sagebrush using methods shown to be effective for ecological site.*

**Responsible Parties:** *BLM, permittees*

**Monitoring:** *Establish utilization standards and monitor every 1 year in 3, establish long term trend transects and revisit 1 year in every 10.*

**Risk #12: Low density or lack of appropriate insects for early brood rearing forage**

**Season/Habitat affected: Brood-rearing**

**Contributing Management Action: : Lack of diverse habitats for favorable insects (ie strong, native grass and forb understories).**

**Risk Rating: Low**

There is little information beyond a short list of known insects found in the diet of sage grouse to predict necessary densities for brood rearing sage grouse. It is assumed that if the necessary sage grouse habitats exist and are in relatively "good health" then there should be no limiting factors for the insects that sage grouse need. At the moment, although there does not appear to be a lack of appropriate habitats for brood rearing although there is always a debate as to the "health" of those habitats, e.g. riparian and other wet areas. Lacking enough scientific literature on this topic and considering that most allotments met their standards for stream health and riparian/wetlands, this risk is currently rated as low for the Vya PMU.

**WAFWA Guidelines:** (See Appendix #1). 1, 6, 7, 8, 11, 13, 14, 19, 29, and 33. See discussion under Risk #1; 17. See discussion under Risk #2; 16 and 21. See discussion under Risk #3; 10. See discussion under Risk #9; 15, 25, and 26. See discussion under Risk #10.

**Conservation Measure(s):** *Where livestock grazing results in utilization determined to be detrimental to habitat quality, changes in grazing management will be made pursuant to 43 CFR 4180.1(d).*

**Responsible Parties:** **BLM, permittees**

**Monitoring:** *Establish utilization standards and monitor every 1 year in 3, establish long term trend transects and revisit 1 year in every 10.*

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**Risk #13: Lack of access to water**

**Season/Habitat affected: Brood-rearing**

**Contributing Management Action 1: Spring developments that capture all water and are inaccessible to sage grouse.**

**Risk Rating: Low to Medium**

**Contributing Management Action 2: Recreational camping at water.**

**Risk Rating: Low**

Recreation is well dispersed, and camping is generally short-term. Spring developments on the Surprise Resource Area are constructed so as not to capture all the available water or are constructed to allow overflow back onto the riparian zone. Accessibility to all wildlife is a prime consideration in construction of all spring developments and placement of troughs, however, many spring developments are in some state of disrepair. The risk due to lack of access to water is therefore considered low to moderate.

**WAFWA Guidelines:** (See Appendix #1). 22. See discussion under Risk #8; 24, 27, and 28.

24. ["Avoid developing springs for livestock water, but if water from a spring will be used in a pipeline or trough, design the project to maintain free water and wet meadows at the spring. Capturing water from springs using pipelines and troughs may adversely affect wet meadows used by grouse for foraging". (Connelly et al. 2000)]

**Surprise Field Office policy/decision:** Most of the springs with the potential to be developed for livestock water, already have been developed. The majority of these have water and wet meadow habitat available at the spring source, however, a large portion of spring developments in the resource area are in poor repair. Spring enclosure fences are frequently found to be down, and livestock and wild horses trample the meadows and foul spring source waters every year. Pipeline shut-off float valves are usually located in the troughs. If they are not shut off in the winter, they freeze and break. If they are not protected from livestock, they are broken. Once the shut-off valves are broken, water continues to flow to the trough and over the top. More water is removed from the spring source meadows than is necessary to water livestock. Maintenance of projects in livestock grazing allotments, including most water developments, is the responsibility of the livestock operators. However, enforcement of maintenance responsibilities has been lax in the Surprise Resource Area.

27. ["Only construct water developments for sage grouse in or adjacent to known summer use areas and provide escape ramps suitable for all avian species and other small animals. Water developments and "guzzlers" may improve sage grouse summer habitats (Autenrieth et al. 1982, Hanf et al. 1994). However, sage grouse used these developments infrequently in southeastern Idaho because most were constructed in sage grouse winter and breeding habitat, rather than summer range (Connelly and Doughty 1989)(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Water has not been developed specifically for sage grouse in the Surprise Resource Area. Water is available and fairly well distributed throughout most of the areas used by sage grouse in the summer, in the form of springs, streams, and livestock troughs and reservoirs. Escape ramps, suitable for use by birds and small mammals, are placed in all livestock troughs. All known guzzlers in the resource area were constructed for use by chukar and bighorn sheep. All are accessible to sage grouse, though few of the chukar guzzlers are in sage grouse summer use areas.

28. ["Whenever possible, modify developed springs and other water sources to restore natural free-flowing water and wet meadow habitats". (Connelly et al. 2000)]

**Surprise Field Office policy/decision:** The majority of developed springs in the resource area have water and wet meadow habitat available at the spring source. Proper maintenance of spring developments should ensure that wet meadow habitat at the source is in good condition, and that a maximum amount of natural water flows from the source. The opportunity exists to move shut off valves from the trough to the spring headbox on some developments. This would prevent problems of valves freezing and being broken, which would retain more water at spring sources.

**Conservation Measure(s):** *Construct new spring developments to maintain their free-flowing characteristics, install wildlife escape ramps in new water troughs, retrofit existing troughs with wildlife escape ramps.*

**Responsible Parties:** *BLM*

**Monitoring:** *Establish project inspections and revisit projects every 5 years.*

**Conservation Measure(s):** *Prohibit development of new campgrounds in riparian or wet meadow areas, apply (as necessary) seasonal or area closures in key sage-grouse areas.*

**Responsible Parties:** *BLM, NDOW, local counties*

**Monitoring:** *Opportunistic law enforcement patrols.*

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## **Factor: Disturbance**

**Risk #14: Human activity during breeding and nesting, or at watering sites**

**Season/Habitat affected: All**

**Contributing Management Action 1: Mining**

**Risk Rating: Low**

**Contributing Management Action 2: Roads**

**Risk Rating: Low**

**Contributing Management Action 3: Urban expansion**

**Risk Rating: Low**

**Contributing Management Action 4: Recreation**

**Risk Rating: Low**

Other than gravel pits, there is no known mining activity in the Vya PMU. Smaller in-holdings of private lands are mostly uninhabited. Recreational activities are widely dispersed and low impact. Sage grouse breeding and early nesting areas are largely inaccessible during active periods due to weather and road conditions. Therefore, there is a low risk of disturbing sage grouse during breeding and nesting, or at watering sites as a result of mining, roads, urban expansion, and recreation. See also discussion under Risk #5.

**WAFWA Guidelines:** (See Appendix #1). N(b) and 12.

N(b). ["Viewing sage grouse on leks (and censusing leks) should be conducted in a manner that minimizes (or preferably eliminates) disturbance to birds (Call and Maser 1986). Agencies should generally not provide all lek locations to individuals simply interested in viewing birds. Instead, 1 to 3 lek locations should be identified as public viewing leks and, if demand is great enough, agencies should consider erecting 2–3 seasonal blinds at these leks for public use. Camping in the center of or on active leks should be vigorously discouraged"(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** There has been little interest expressed by the general public in viewing sage grouse leks on the Surprise Resource Area. Most lek locations are difficult to access during active periods due to wet roads and snowdrifts. On the ground census work is carefully conducted to minimize disturbance to birds, and helicopter census work is infrequent. There is little to no camping occurring while sage grouse are using leks (too cold and wet), and most lek locations are not in areas that are highly desirable for camping later in the year (mostly low sagebrush flats with no shade or water).

12. ["Adjust timing of energy exploration, development, and construction activity to minimize disturbance of sage grouse breeding activities. Energy-related facilities should be located >3.2 km from active leks whenever possible. Human activities within view of or <0.5 km from leks should be minimized during the early morning and late evening when birds are near or on leks". (Connelly et al. 2000)]

**Surprise Field Office policy/decision:** Little energy development has occurred in the Surprise Resource Area and has generally been associated with powerline right-of-ways. Field Office policy is to consult with state wildlife agencies when developing site plans for energy and mining activities. Bonds for restoration of sites and/or to mitigate site impacts are required to ensure that impacts to the resources are minimized. The field office negotiates with energy and mining development companies to avoid disturbing critical wildlife habitat, including sage grouse breeding habitat, during development activities. However, mining and energy development activities cannot be prevented due to concerns over impacts to wildlife species that are not federally listed as threatened or endangered.

**Conservation Measure(s):** During breeding season, surface occupancy within 0.5 km (0.3 miles) of active breeding sites (leks) should be avoided. Avoid energy or mineral associated facilities within 3.2 km (2 miles) of leks. Off site mitigation may be considered in evaluating minerals activities on a case-by-case basis.

**Responsible Parties:** BLM

**Monitoring:** Monitor leks a minimum of 2 years in 5.

**Conservation Measure(s):** Except in emergency situations, limit activities in known/occupied sage grouse habitat to avoid adverse impacts related to rights-of-way. Do not authorize new rights-of-way within 3.2 km (2 miles) of leks.

**Responsible Parties:** BLM, State transportation agencies

**Monitoring:** Monitor leks a minimum of 2 years in 5.

**Conservation Measure(s):** Retain public lands that contain leks, nesting, brood-rearing or other important habitats for sage-grouse unless disposal would result in acquisition of equal or better habitat or lead to better habitat connectivity.

**Responsible Parties:** BLM, local and state governments

**Monitoring:** Monitor leks a minimum of 2 years in 5.

**Conservation Measure(s):** Prohibit development of new campgrounds in riparian or wet meadow areas, apply as necessary seasonal or area closures in key sage-grouse areas.

**Responsible Parties:** BLM, local counties

**Monitoring:** Monitor leks a minimum of 2 years in 5. Opportunistic law enforcement patrols.

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## **Risk #15: Additional predator perch sites**

**Season/Habitat affected: All**

**Contributing Management Action 1: Juniper encroachment as a result of lack of fire/disturbance.**

**Risk Rating: Medium to High**

**Contributing Management Action 2: Pasture and allotment fences, spring enclosures, well structures, and troughs.**

**Risk Rating: Medium**

**Contributing Management Action 3: Transmission lines and communication sites**

**Risk Rating: Medium**

One powerline runs through the Surprise Resource Area portion of the Vya PMU. There is only one known historic lek in the Vya PMU that is less than 3 km (1.8 miles) from the powerline. Only three known visits have occurred to this site, in 1974, 1976 and once again in 2002. Results are unknown for 1974 or 1976 with no birds seen in 2002. Considering the lack of survey information, these results are only inconclusive.

There is one radio facility located just inside the Vya PMU, about 13.2 km (8.25 miles) northeast of Cedarville, California. There are no known or suspected leks within 3km of the site. No applications for additional powerlines or communication sites have been filed in the Surprise Field Office for many years.

Approximately 107,000 acres (22%) of the Vya PMU is classified as encroached upon by juniper (See Appendix 3), see also discussion under Risk #4. Juniper is likely providing some amount of raptor perch sites, primarily in sage grouse nesting, brood-rearing, and some lek habitats. The amount of this type of use in relation to canopy closure is currently unknown.

Structures, including spring developments, water pipelines, troughs, wells, exclosures, guzzlers, holding fields, pasture and allotment fences, and private land fences, exist throughout the Vya PMU. Structures are concentrated around reliable water sources, which frequently are private and/or have been developed for watering livestock on public lands. As a result, the risk of structures being used by raptors to hunt sage grouse is greatest later in the year, and on dry years when marginal water sources are unavailable.

As a result, there is a moderate to high risk that additional predator perch sites will be developed as a result of juniper encroachment and moderate risks associated with structural developments and utilities.

**WAFWA Guidelines:** (See Appendix #1). 3; 4

3. ["Increase the visibility of fences and other structures occurring within 1 km of seasonal ranges by flagging or similar means if these structures appear hazardous to flying grouse (e.g., birds have been observed hitting or narrowly missing these structures or grouse remains have been found next to these structures) "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Surprise Field Office policy is to flag all fences during construction to increase their visibility to all species of wildlife (particularly pronghorn antelope, mule deer, and sage grouse) and wild horses. Flagging generally lasts for a year or two, by which time wildlife populations are accustomed to the fence location and generally avoid injury. In the Surprise Resource Area, sage grouse have never been observed hitting structures and no remains have ever been found next to structures.

4. ["Avoid building powerlines and other tall structures providing perch sites for raptors within 3 km of seasonal habitats. If these structures must be built, or presently exist, the lines should be buried or poles modified to prevent their use as raptor perch sites "(Connelly et al. 2000).]

**Surprise Field Office policy/decision:** Surprise Field Office policy is to stay within the existing corridors and use existing sites to full capacity before authorizing additional sites and rights of ways for powerlines and communication sites. The Surprise Field Office currently does not plan to require the existing powerline be buried or made less accessible to raptors.

The Land Use Plan recognizes the potential for additional communications site development within the Vya PMU (see Cowhead/Massacre LUP, Subunit #3, decision #13). The Land Use Plan also states that the 49 Mountain radio communications site (located just outside of the PMU) should first be fully developed before any new sites should be considered.

The location of leks is considered when any structure capable of providing raptor perch sites is proposed, including livestock control fences. Where possible, structures are kept as far away from leks as possible. When structures need to be closer than 3 km (1.8 miles) from known leks, other steps are taken to minimize their use by raptors, including keeping the structure out of sight of the lek with topography, minimizing wood posts, braces, and rock jacks, and adding spikes to steel fence posts to discourage raptor perching.

**Conservation Measure(s):** *Use mechanical treatment or prescribed fire to reduce juniper.*

**Responsible Parties:** *BLM, private land owners*

**Monitoring:** *Establish photo-points and revisit 1 year in 5.*

**Conservation Measure(s):** *Construct new livestock facilities (troughs, fences, corrals) at least 0.6 miles from leks, restrict new water developments, use "perch guards" on fence posts and rock cribs, and construct future livestock exclosures large enough to minimize raptor predation.*

**Responsible Parties:** *BLM*

**Monitoring:** *Monitor leks a minimum of 2 years in 5, inspect projects 1 year in 5.*

**Conservation Measure(s):** *Avoid placing new structures within 2 miles of leks (try to place near existing corridors), avoid visiting sites near leks at dawn or dusk during breeding season, on a case-by-case basis off site mitigation may be considered.*

**Responsible Parties:** *BLM, California and Nevada Public Utilities*

**Commissions (CPUC and NPUC).**

**Monitoring:** *Monitor leks a minimum of 2 years in 5.*

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**Risk #16: Artificially high predator population**

**Season/Habitat affected: All**

**Contributing Management Action 1: High speed roads, which increase the amount of road-killed animals and attract ravens.**

**Risk Rating: Low**

**Contributing Management Action 2: Urban expansion and ranchettes, which increase the amount of garbage and attract ravens.**

**Risk Rating: Low**

**Contributing Management Action 3: Agricultural expansion, which increases the amount of food for ravens.**

**Risk Rating: Low**

Private lands are mostly uninhabited with little chance of additional urban or agricultural expansion (See discussion under Risk #5). With the exception of portions of the Barrel Springs Byway, Nevada highways 34 and 8A (45 mph, gravel), roads in the Vya PMU are mostly low speed. Therefore, there is a low risk of producing an artificially high predator population as a result of road kill, urban expansion, or agricultural expansion.

**Conservation Measure(s):** *Do not authorize new rights-of- ways within 3.2 km (2 miles) of leks.*

**Responsible Parties:** **BLM, NDOT**

**Monitoring:** *Monitor leks a minimum of 2 years in 5.*

**Conservation Measure(s):** *Retain public lands that contain leks, nesting, brood-rearing or other important habitats for sage-grouse unless disposal would result in acquisition of equal or better habitat or lead to better habitat connectivity.*

**Responsible Parties:** **BLM**

**Monitoring:** *Monitor leks a minimum of 2 years in 5.*

**Conservation Measure(s):** *Retain public lands that contain leks, nesting, brood-rearing or other important habitats for sage-grouse unless disposal would result in acquisition of equal or better habitat or lead to better habitat connectivity.*

**Responsible Parties:** **BLM**

**Monitoring:** *Monitor leks a minimum of 2 years in 5.*

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**Risk #17: Human-caused (non-prescription) fire**

**Season/Habitat affected: All**

**Contributing Management Action: Dispersed recreation and roads.**

**Risk Rating: Low**

Although accidental fires have accounted for most of the acreage burned in the PMU, only about 1.5 % of acreage in the Vya PMU is thought to have burned due to non-prescription (accidental) fires. In addition, only one of these fires, an unnamed 43 acre fire in 1978, was thought to be caused by vehicle exhaust igniting vegetation. The number of these fires is not expected to increase substantially in the near future due in part to low recreational use and the associated lack of road access. Therefore, there is a low risk of disturbance to sage grouse as a result of accidental human caused fire associated with recreation and roads.

**WAFWA Guidelines:** (See Appendix #1). 19. See discussion under Risk #1.

**Conservation Measure(s):** *Limit development of new roads into known/occupied sage-grouse habitat. Do not authorize new rights-of- ways within 2 miles of leks. Aggressive initial attack response to all fires.*

**Responsible Parties:** *BLM, NDOT*

**Monitoring:** *Annually, during fire season, use all available resources e.g., lookouts, ground spotters, lightning maps, to detect fires. Monitor lek sites at minimum 2 in 5 years.*